

Book Review

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Title: **Carpenter's Complete Guide to the SAS Macro Language**
Author: Art Carpenter
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Although I've been programming in the IBM mainframe environment (COBOL mostly) for quite a while, I'm relatively new to the world of SAS programming (with six months experience). Fortunately, I've discovered some helpful SAS programming veterans, and this book. Turns out that, Carpenter's Complete Guide to the SAS Macro Language ("Carpenter's Guide") is just what the doctor-ordered for new fledgling SAS Macro programmers such as me.

As explained in the About This Book section (the book is very clear in its self documentation), Carpenter's Guide was intended as both a macro: language reference, and course (either self-taught or instructor lead) text. The text is divided into three parts: Macro Basics (Part 1), Using Macros (Part 2), and Advanced Macro Topics, Utilities and Examples (Part 3). Parts 1 & 2 are applicable as course or reference, while Part 3 is meant primarily as a reference.

Beginning with a brief overview of the SAS Macro Facility (macro processor and macro language), Part 1 provides training in the principles of macro variables and macros. Each chapter has summaries and exercises (answers are provided in the back).

It's best if Part 1 is read sequentially, as the principles build upon one another. In the Preface, Carpenter cautions that "... in order to get the maximum benefit, you should be well versed in the use of the DATA step and fairly comfortable in the use of basic procedures." This is good advice as throughout the text Carpenter draws informative parallels between the rules and capabilities of macros as compared to those of DATA steps.

Part 2 picks up where Part 1 left off, addressing program control through the use of macros. This includes: macros invoking macros, iterative executions, interfacing with DATA steps and using macro functions, and applying macro references with SCL. Like Part 1, Part 2 also features summaries and exercises.

Unlike Part 1, Part 2 does not have to be read sequentially. Once the lessons from Part 1 are learned you can pick and choose chapters of interest for the reader.

Similarly, Part 3 can be read - referenced - randomly. The topics covered here include: writing dynamic code (an extremely powerful feature of macros), controlling the environment, more applications with SAS Data sets, SAS System Autocall Macros, and multi-subscripted macro variables.

Parts 1, 2 and 3 of "Carpenter's Guide", all feature a generous sampling of examples and sample macros. Each of these, not only clearly delineates the point just made but also serves as a good basis for the reader's own macro coding.

Possibly the best review of this book comes from Jane Stroupe (an excellent SAS Institute instructor who also teaches the SAS Macro Language Course), who says, "This is a great book for new SAS Macro programmers."